III. Maintenance and Repair

Your BOSCONIAN game needs certain types of maintenance to keep it in good working order. Clean, well maintained games attract players and earn more profits.

The most important thing for you to remember is to run the Self-Test EVERY TIME you collect money from the coin box. **JUST LOOKING** at your game **WILL NOT** tell you if all its controls and inside parts are working correctly. The Self-Test will inform you whether or not your game is working the way it should.

The second most important thing you should remember is to clean the outside of the game and coin acceptor mechanisms on a regular basis.

CLEANING

The outside of the game cabinet plus the metal can be cleaned with any non-abrasive household cleaner. However, the front of the T.V. monitor tube and **both sides** of all other glass and plastic on or in the game MUST be cleaned with anti-static cleaner **ONLY.** For cleaning the coin acceptors; hot soapy water may be used on the plastic ones and any household cleanser may be used on the metal ones. If you wish, special coin machine cleaners that leave no residue may be purchased from your distributor.

DO NOT dry-wipe any of the plastic panels. This is because any dust that was on them can scratch their surfaces. If this has happened, anyone looking through this type of damaged plastic would feel he was looking at the game through a fog. This fogging damage CAN NOT be repaired or reversed. The ONLY solution is to **replace** the damaged piece of plastic.

FUSE REPLACEMENT

This game contains several fuses located as shown in Figure 8.

1. **UPRIGHT MODEL:**
   As viewed from the back, facing the cabinet, with the rear access door removed; the fuses are located on the Mech. Panel and the Power Supply Board.
2. **MINI MODEL:**
   As viewed from the back, facing the cabinet, with the rear access door removed; the fuses are located on the Mech. Panel and the Power Supply Board.
3. **COCKTAIL TABLE MODEL:**
   As viewed from the coin door side of the cabinet, with the monitor tilted open to one side; the fuses are located on the Mech. Panel and the Power Supply Board.

Replace fuses ONLY with the type and size listed in the Illustrated Parts Breakdown Section of this manual.

See the T.V. Monitor Manual (available on request from your distributor or monitor manufacturer) and/or the T.V. Troubleshooting Section of this manual for information on these fuses.

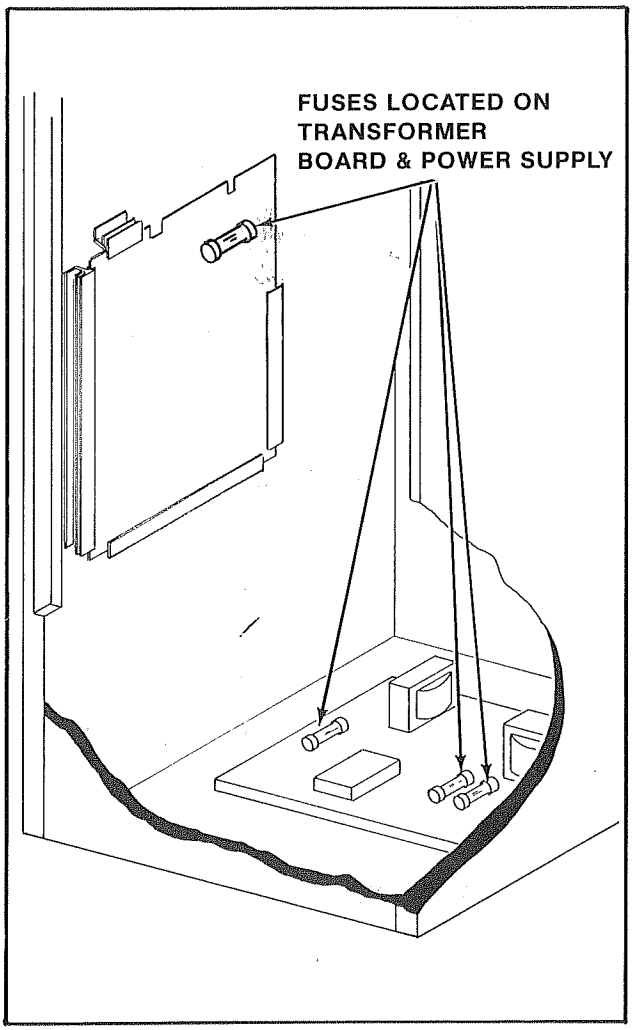


Figure 8 Location of fuses

OPENING THE CONTROL PANEL. See Figure 9.

1. UPRIGHT MODEL:

- The control panel is held in place by three latches, one on the left side, one on the right side, and one on the front center.

  They are spring loaded to provide constant positive pressure on their latch plates.

  They can be reached through the coin door **AFTER** turning power to the game off.

  To release the latches, lift up and toward the center of the control panel.

  Once they are released, unhook them from their latch plates.

- To remove the control panel:

  Raise it up and tilt it toward you until you can see the cable behind it.

  Cradling the control panel between yourself and the cabinet, disconnect it from its cabling.

  The control panel is now free and can be removed.

- To reinstall the control panel, reverse this procedure.

2. MINI MODEL:

- The control panel is held in place by two latches, one on the right side and one on the left side of the cabinet.

  They are spring loaded to provide constant positive pressure on their latch plates.

  They can be reached through the coin door **AFTER** turning power to the game off.

  To release the latches, lift up and toward the center of the control panel.

  Once they are released, unhook them from their latch plates.

- To remove the control panel:

  Raise it up and tilt it toward you until you can see the cable behind it.

  Cradling the control panel between yourself and the cabinet, disconnect it from its cabling.

  The control panel is now free and can be removed.

- To reinstall the control panel, reverse this procedure.

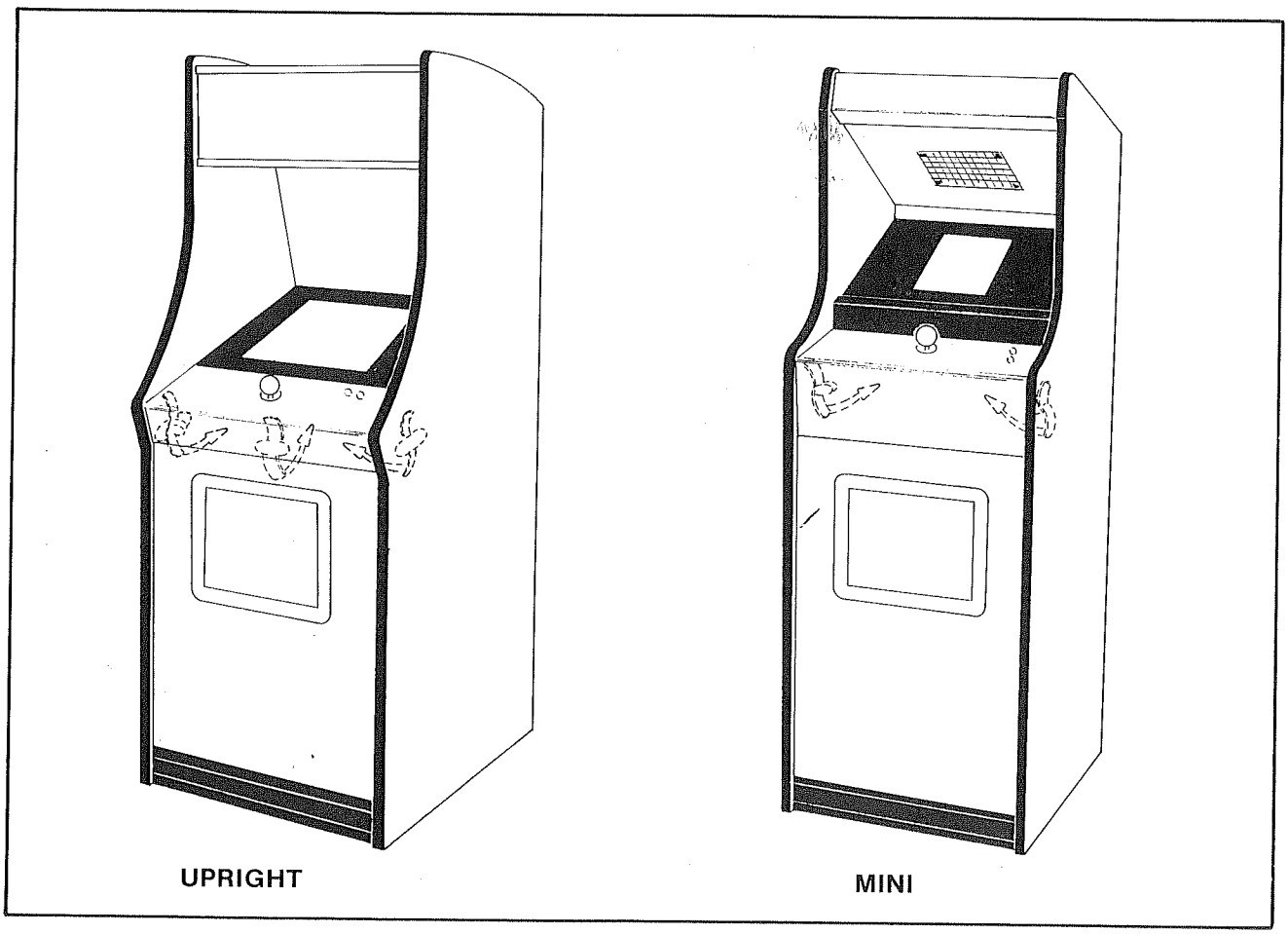


Figure 9 Removing control panel — Upright & Mini games

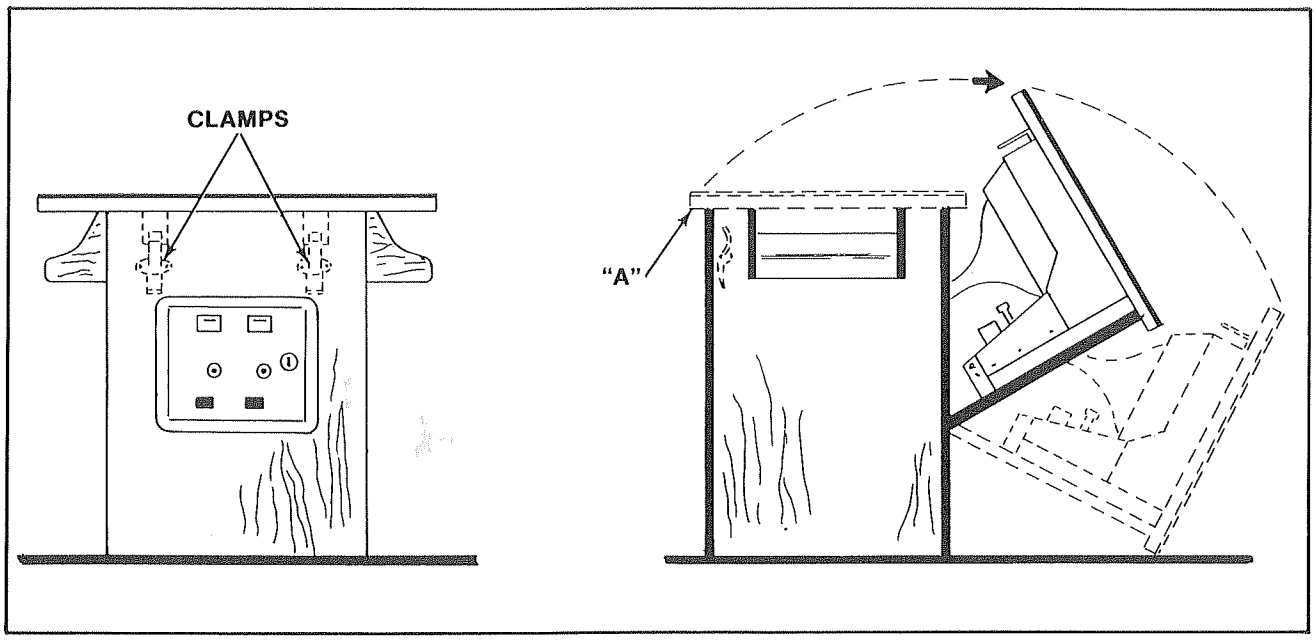


Figure 10 Opening the Cocktail game

3. COCKTAIL TABLE MODEL:

- Each control panel is held in place by several screws, two on the inside of the cabinet and three along the outside bottom edge of the control panel.

  Turn power to the game off.

  Open the coin box door and release the two latches indicated in Figure 10.

CAUTION: The right hand latch is very close to the HIGH VOLTAGE on the monitor.

Once they're released, unhook them from their latch plates.

Grasp the table top at "A" and open as indicated in Figure 10.

CAUTION: Due to the weight of the monitor, EXTREME CARE MUST be taken when opening the cabinet.

Remove the screws which secure the control panel in place. See Figure 11.

- To remove the contol panel(s):
  Disconnect it from its cabling.
  The control panel is now free and can be removed.
- To reinstall the control panel, reverse this procedure.

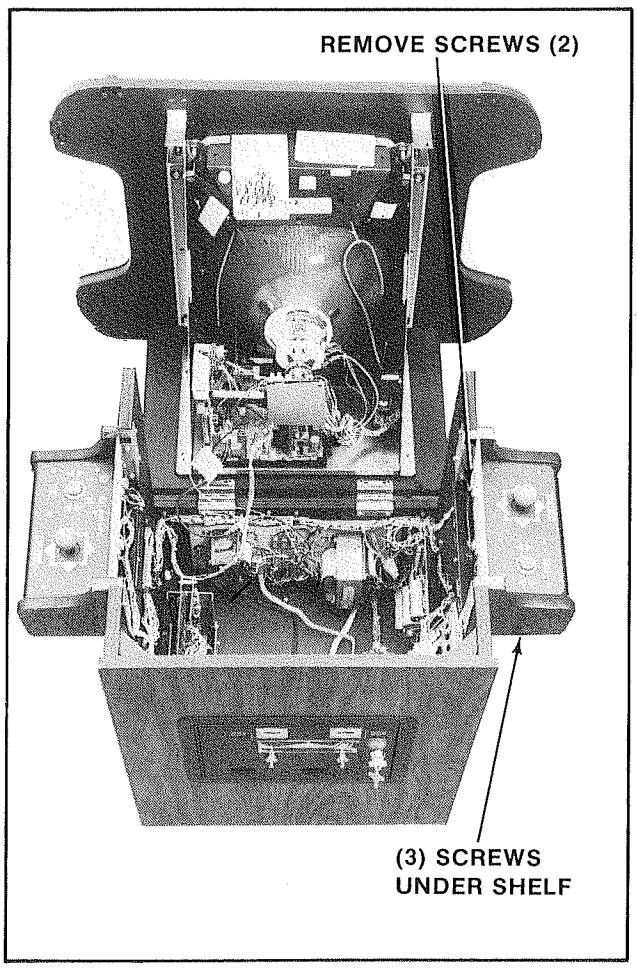


Figure 11 Removing control panel — Cocktail game

REMOVAL OF THE MAIN-DISPLAY-GLASS AND/OR THE T.V. BEZEL ASSEMBLY

1. UPRIGHT MODEL: See Figure 12.

NOTE: To do this, the latches which secure the control panel MUST be released. The control panel need not be removed. See the "UPRIGHT MODEL" procedure.

- Turn the power to the game off and remove the rear access door.
- Remove the screws from the glass support bracket and lift it out the back of the cabinet.
- Grasp the main-display-glass in the top center, lift up slightly and pull it out the rear of the cabinet.
- Loosen the screws which secure the T.V. bezel-glass-clamps in place.
  Move the clamps to the side and the bezel glass may be removed.
  Remove the above mentioned screws and the bezel with four bezel-glass-clamps may be removed.
- To reinstall the T.V. bezel assembly and the main-display-glass, reverse this procedure.

2. MINI MODEL: See Figure 13.

NOTE: In order to do this, the control panel **MUST** be removed first. See the "MINI MODEL" procedure.

- Turn the power off to the game and remove the control panel.
- Remove the screws which secure the glass clamping plate.
- Lift out the glass clamping plate. This frees the main-display-glass so it can be lifted up.
- By putting your finger in the hole in the middle of the main-display-glass support, you can lift it up and out.
- Remove the screws which secure the T.V. bezel assembly and lift it out.

NOTE: Use the hole in the center of the main-display-glass support to grasp it.

- Reverse this procedure to reinstall the T.V. bezel assembly and the main-display-glass.

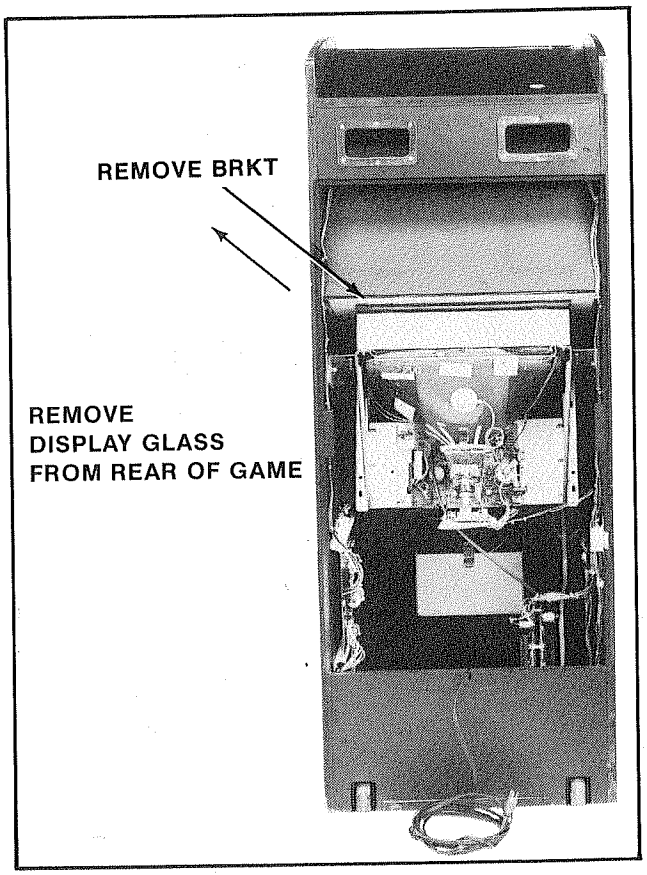


Figure 12 Removing display glass—Upright game

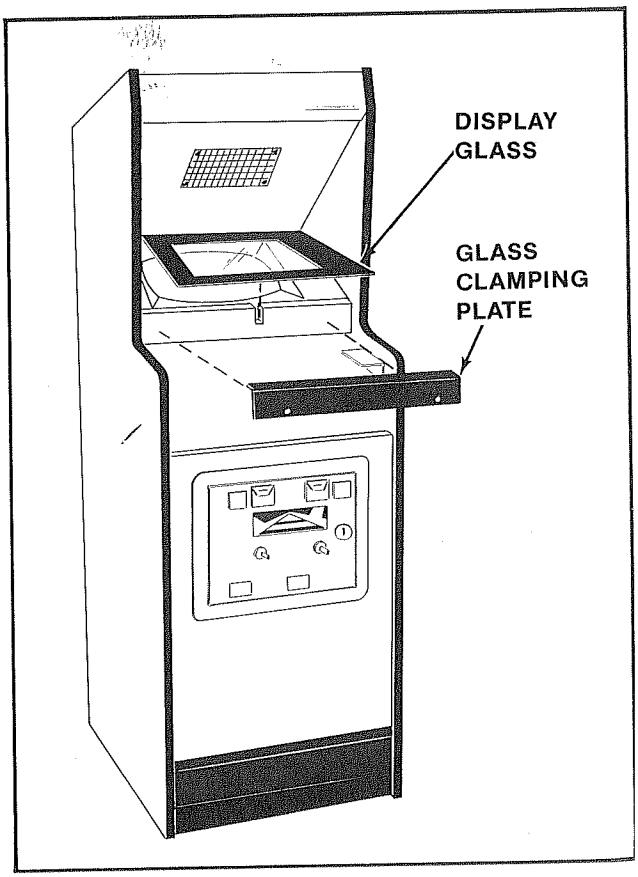


Figure 13 Removing display glass — Mini game

3. **COCKTAIL TABLE MODEL:** See Figure 14.

NOTE: This may be done with the table top in the open or the closed position. If you decide to open the table top, TURN THE POWER TO THE GAME **OFF FIRST.**

- Remove the screws which secure the table top glass clamps in place.
- Remove the table top glass.
- Lift out the T.V. bezel assembly.
- To reinstall the T.V. bezel assembly and the table top glass, reverse this procedure.

T.V. MONITOR REPLACEMENT

CAUTION: High voltages may exist in any television unit, even with the power disconnected. Use EXTREME CAUTION and do not touch electrical parts or the T.V. yoke area with your hands or with metal objects held in your hands!
In addition, BE SURE TO USE HEAVY GLOVES when handling the monitor. You could cut your hands on the metal T.V. chassis without such protection.

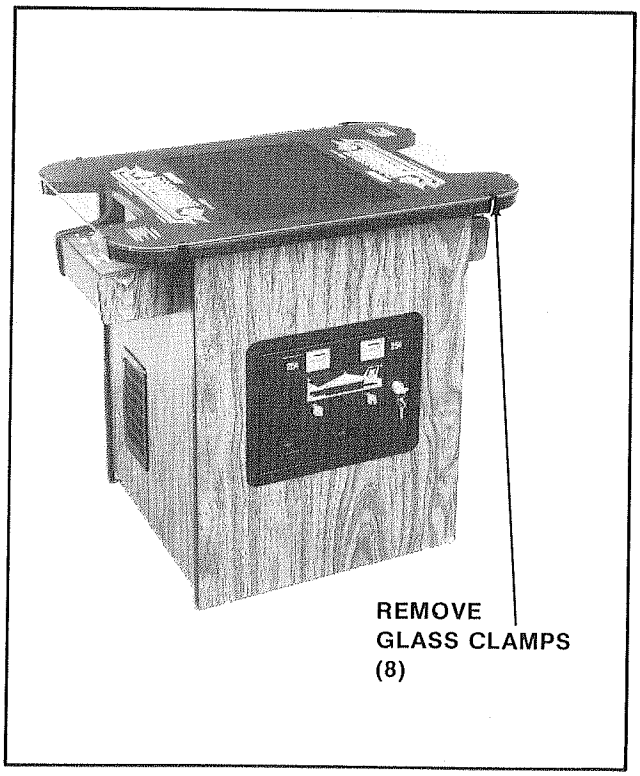


Figure 14 Removing top glass — Cocktail game

DANGER: The T.V. monitor DOES NOT contain an isolation transformer on its chassis (it is mounted instead on the floor of the cabinet). When servicing the monitor on a test bench, YOU MUST ISOLATE THE MONITOR FROM AC VOLTAGE WITH AN ISOLATION TRANSFORMER.

1. **UPRIGHT MODEL:** See Figure 15.

- Turn power off to the game.
- Open the rear access door.
- Completely disconnect the T.V. monitor from all its cabling. DON'T FORGET THE CHASSIS GROUND WIRE.

  Before removing T.V. monitor, the main-display-glass and bezel must be removed. See above "Upright Model" procedure.

  With the removal of only four bolts, the T.V. monitor and its mounting channels will be loose.

  The monitor mounting channels slide on top of and against two metal guides mounted to the cabinet's right and left sides. The monitor is removed by sliding it out the back of the cabinet. See Figure 15.

  To reinstall the T.V. monitor, reverse this procedure.

  After replacing the T.V. monitor, be sure to run the game Self-Test.

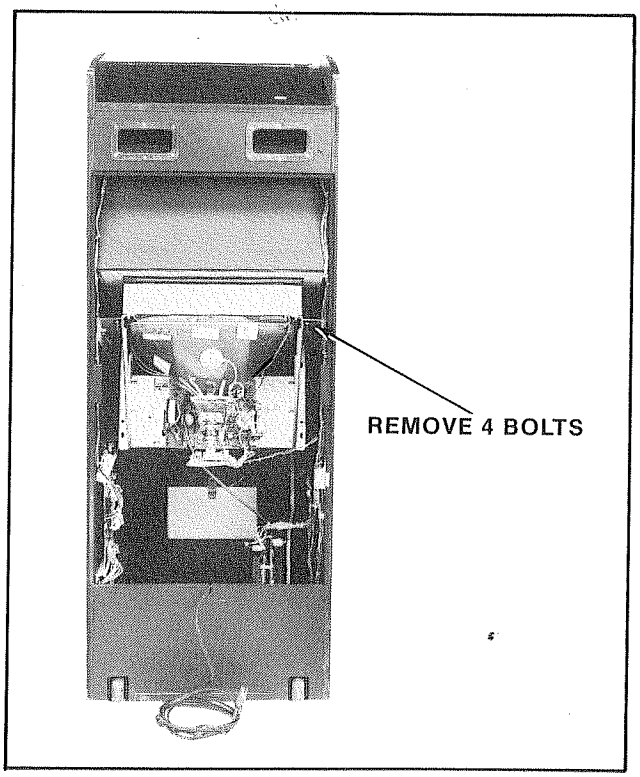


Figure 15 Replacing monitor — Upright game

2. **MINI MODEL:** See Figure 16.

Turn the power off to the game.

Open the rear access door.

Completely disconnect the T.V. monitor from all its cabling. DON'T FORGET THE CHASSIS GROUND WIRE.

Before removing the T.V. monitor, the main-display-glass and bezel must be removed. See above "Mini Model" procedure.

With the removal of only four nuts, the T.V. monitor will be loose.

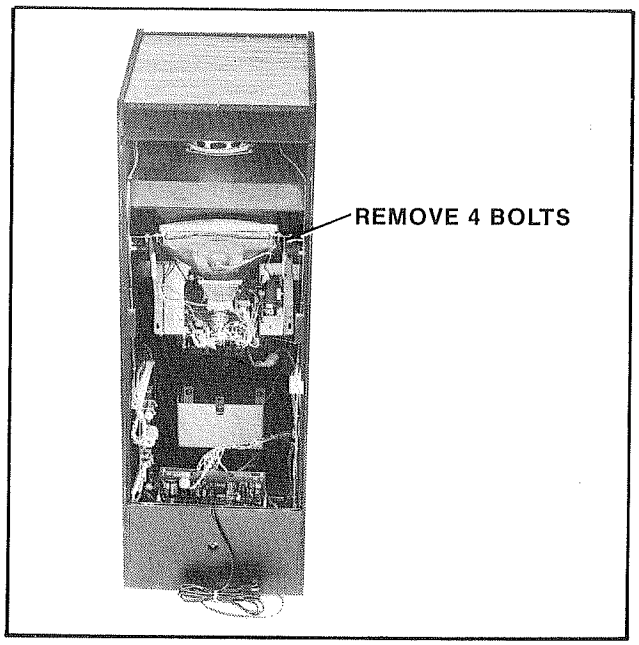


Figure 16 Replacing monitor — Mini game

CAUTION: BE SURE to support the T.V. monitor from the rear while removing the four bolts so it will not fall out of the cabinet.

The monitor is removed by supporting it and pulling straight back as shown in Figure 16.

To reinstall the T.V. monitor, reverse this procedure.

After replacing the T.V. monitor, be sure to run the game Self-Test.

3. **COCKTAIL TABLE MODEL:** See Figure 18.

Turn power off to the game.

Open the coin box door and release the two latches indicated in Figure 17.

CAUTION: The right hand latch is very close to the HIGH VOLTAGE on the monitor.

- Once the latches are released, unhook them from their latch plates.
- Grasp the table top at "A" and open it as indicated in Figure 17.

CAUTION: Due to the weight of the monitor, EXTREME CARE MUST be taken when opening the cabinet.

- Remove the screws which hold the table top glass clamps in place.
- Remove the table top glass.
- Lift out the T.V. bezel assembly.

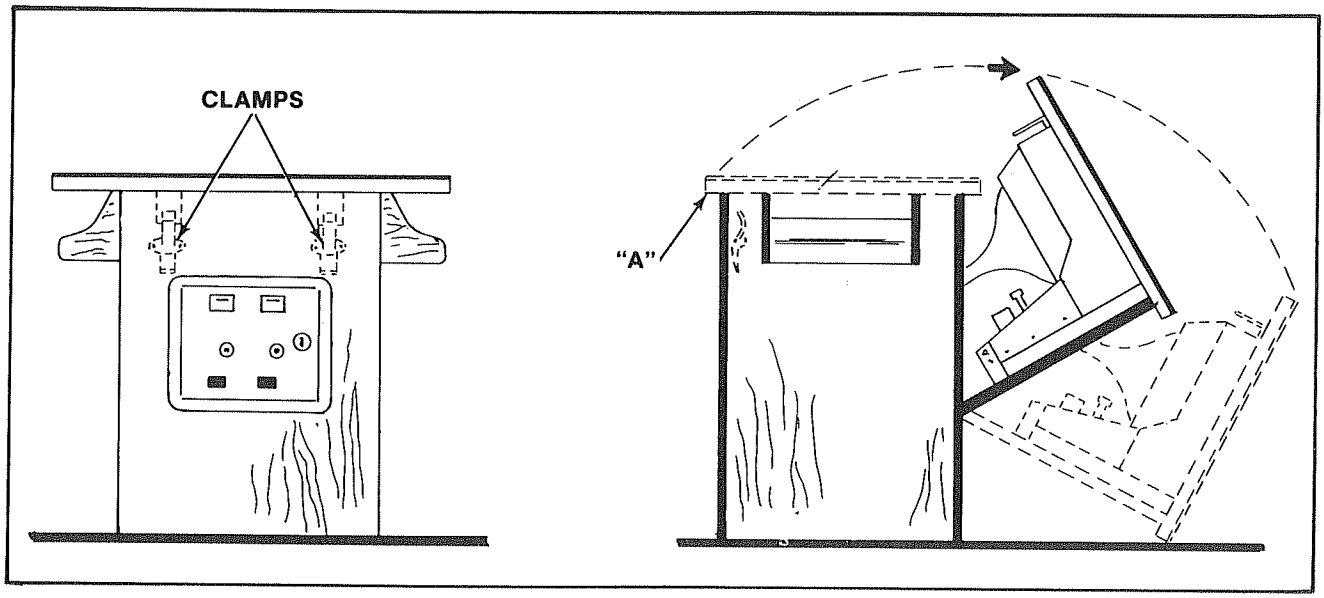


Figure 17 Opening the Cocktail game

- Completely disconnect the T.V. monitor from all its cabling. DON'T FORGET THE CHASSIS GROUND WIRE.
- Remove the screws holding the T.V. monitor chassis to the "L" by the door hinge(s). See Figure 18.
- Close the Cocktail Table top and re-latch it.
- Remove the screws which secure the T.V. monitor mounting brackets to the edges of the slot cut in the table top. See Figure 18.
- Pry up the end of each monitor mounting bracket with a screwdriver or similar tool until you can grasp them both.
- Lift the T.V. monitor straight up and out of the table top being VERY CAREFUL not to bump the neck of the picture tube.
- To reinstall the T.V. monitor, reverse this procedure.
- Be sure to check the clearance of the "L" brackets BEFORE setting the monitor into the table top.
- After replacing the T.V. monitor, be sure to run the game Self-Test.

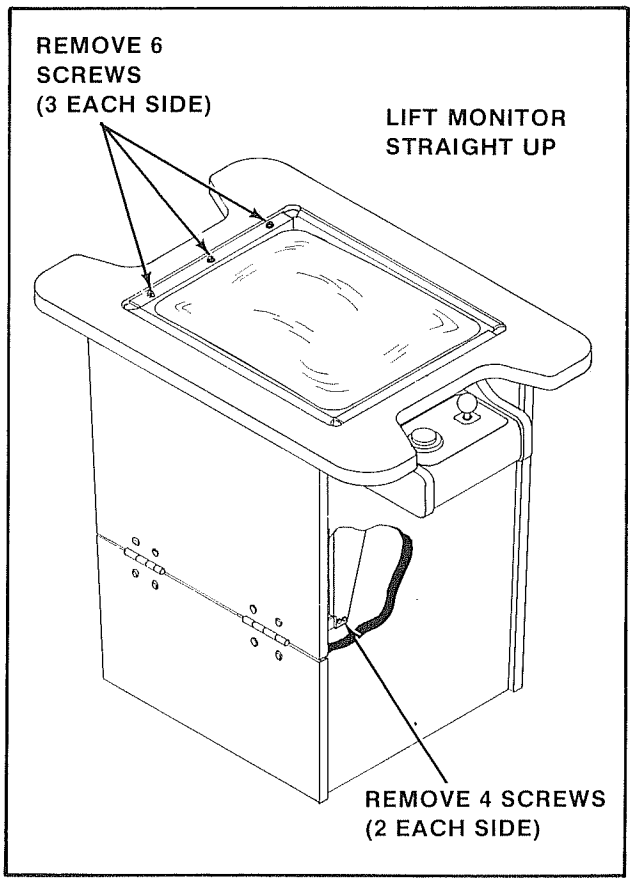


Figure 18 Replacing monitor — Cocktail game

PRINTED CIRCUIT BOARD (P.C.B.) REPLACEMENT

1. **UPRIGHT MODEL:** See Figure 19.
   - Turn the power to the game off.
   - Unlock and open the rear access door.
   - Disconnect the video board from all its cabling.
   - Disconnect the CPU board from all its cabling.
   - Slide the P.C.B. clamps to one side, remove the P.C.B.'s from the card rack and take them out the back of the cabinet.
   - Disconnect the power supply board from all its cabling, remove the P.C.B. supports indicated in Figure 19, and slide it out the back of the cabinet.
   - To reinstall the above P.C.B.'s, reverse this procedure.

NOTE: P.C.B.'s are all keyed and will **ONLY** fit into their connectors one way without forcing them. The plugs on the cable harness which connect it to the P.C.B.'s are also keyed and will **ONLY** go onto their connectors one way without forcing them.

2. **MINI MODEL:** See Figure 19.
   - Turn the power off to the game.
   - Unlock and open the rear access door.
   - Disconnect the video board from all its cabling.
   - Disconnect the CPU board from all its cabling.
   - Slide the P.C.B. clamps to one side, remove the P.C.B.'s from the card rack and take them out the back of the cabinet.
   - Disconnect the power supply board from all its cabling, remove the P.C.B. supports indicated in Figure 19, and slide it out the back of the cabinet.
   - To reinstall the above P.C.B.'s, reverse this procedure.
3. **COCKTAIL TABLE MODEL:** See Figure 19.
   - Turn the power off to the game.
   - Open the cabinet:
     Open the coin box door and release the two latches indicated in Figure 17.

CAUTION: The right hand latch is very close to the HIGH VOLTAGE on the monitor.

     Once they're released, unhook them from their latch plates.
   - Grasp the table top at "A" and open it as indicated in Figure 17.

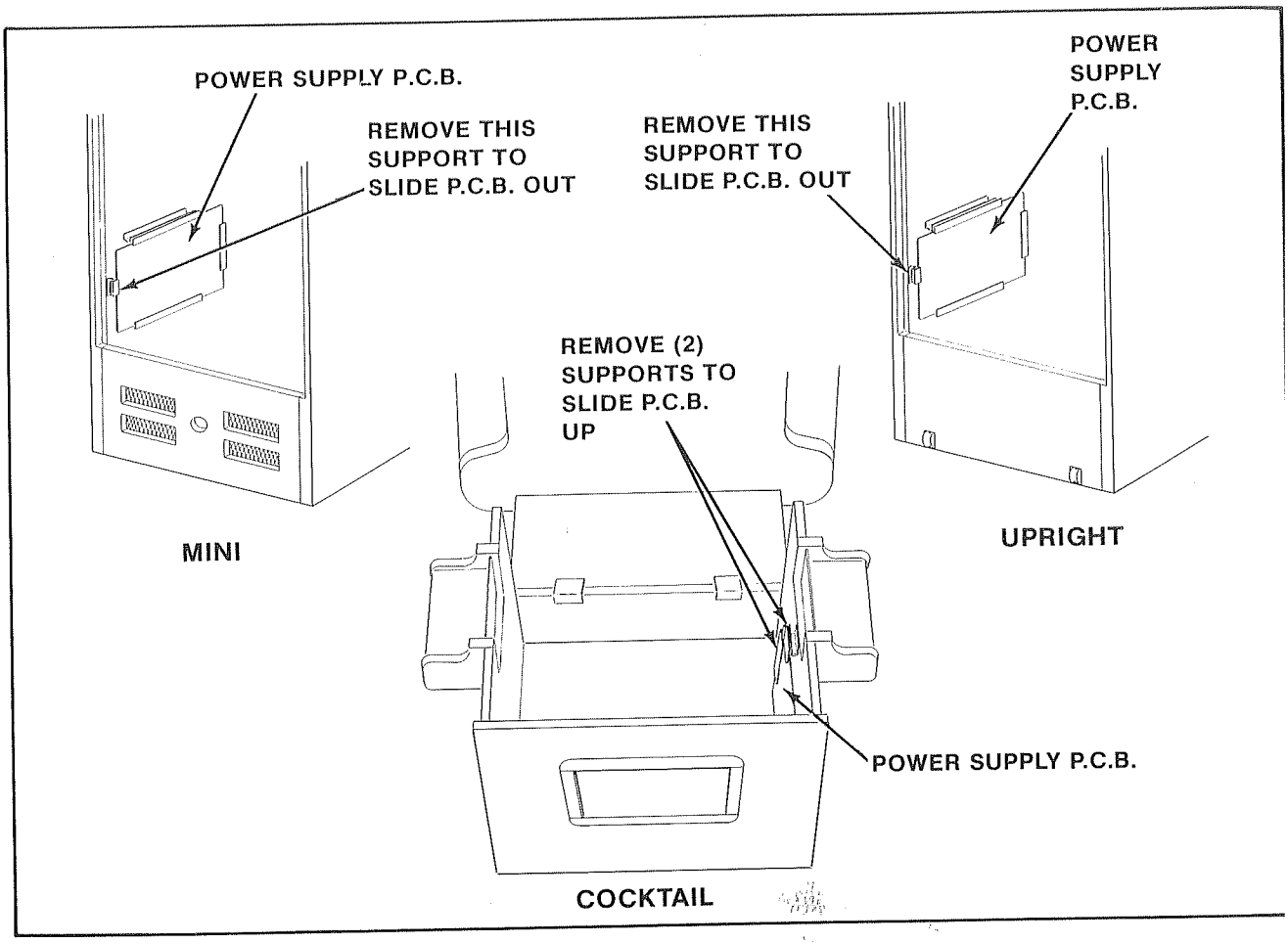


Figure 19 Power supply replacement

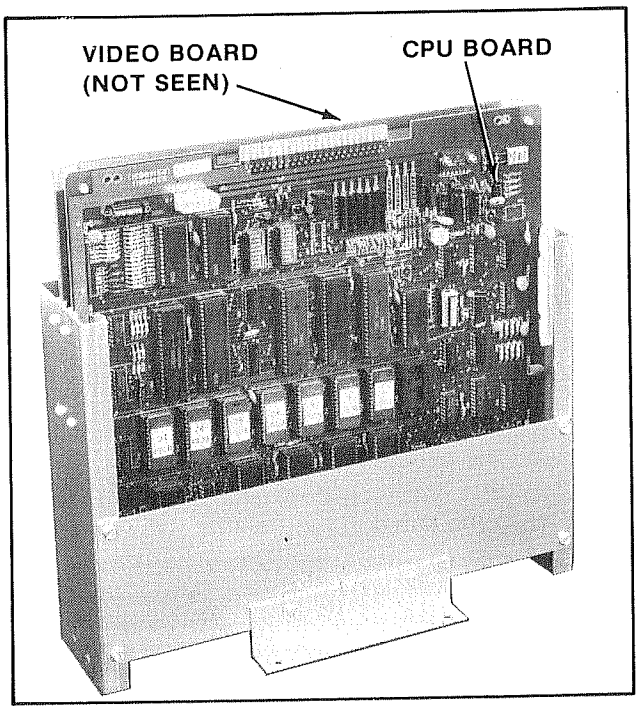


Figure 20 Removing Video & CPU boards from card rack

CAUTION: Due to the weight of the monitor, EXTREME CARE MUST be taken when opening the cabinet.

- To remove the power supply board. See Figure 19.
  Disconnect it from all its cabling.
  Remove the two smallest P.C.B. supports.
  Once these are removed, the power supply can be lifted out the top of the cabinet.
  To reinstall the power supply board, reverse this procedure.

- To remove the video and CPU boards. See Figure 20.
  Disconnect the video board from all its cabling
  Disconnect the CPU board from all its cabling
  Slide the P.C.B. clamps to one side, remove the P.C.B.'s from the card rack and lift them out the top of the cabinet.
  To reinstall the video and CPU boards, reverse this procedure.

OPENING THE ATTRACTION PANEL

1. UPRIGHT MODEL: See Figure 21.

- Turn the power to the game off.
- Opening the attraction panel:

  Remove the screws which secure the top bracket in place. (They are on its top side.) See Figure 21.

  Remove the top bracket and slide up the attraction panel. This exposes the attraction panel fluorescent light tube and its mounting bracket assembly. See Figure 21.

  To reinstall the attraction panel, reverse this procedure.
- The fluorescent light tube may be replaced at this time. BE CAREFUL NOT TO DROP IT.

WARNING: If you drop a fluorescent tube and it breaks, IT WILL IMPLODE! Shattered glass can fly six (6) feet or more from the implosion. Use care when replacing any fluorescent tube.

- Replacing the fluorescent tube starter. See Figure 22.

  Be sure the power to the game has been turned off.

  Grasp the starter (it is on the back of the mounting bracket), give it a quarter turn, and remove it from its socket.

  To replace the fluorescent light tube starter, reverse this procedure.
- Replacement of the fluorescent tube mounting bracket assembly. See Figure 23.

  Be sure the power is off to the game.

  Disconnect it from its power cable.

  Remove the screws at its right and left hand sides which secure it and gently slide it out the front of the cabinet, being careful not to catch its power cable on anything.

  To reinstall the fluorescent tube mounting bracket assembly, reverse this procedure.
- Replacing the speaker. See Figure 24.

  Be sure the power is off to the game.

  Remove the attraction panel and disconnect the speaker from its cabling.

  Remove the nuts and bolts which secure the speaker and speaker grill in place and set them and the speaker grill aside.

  Once the bolts which secure the speaker in place are removed, the speaker may be removed through the opening where the attraction panel was.

  Reverse this procedure to reinstall the speaker.

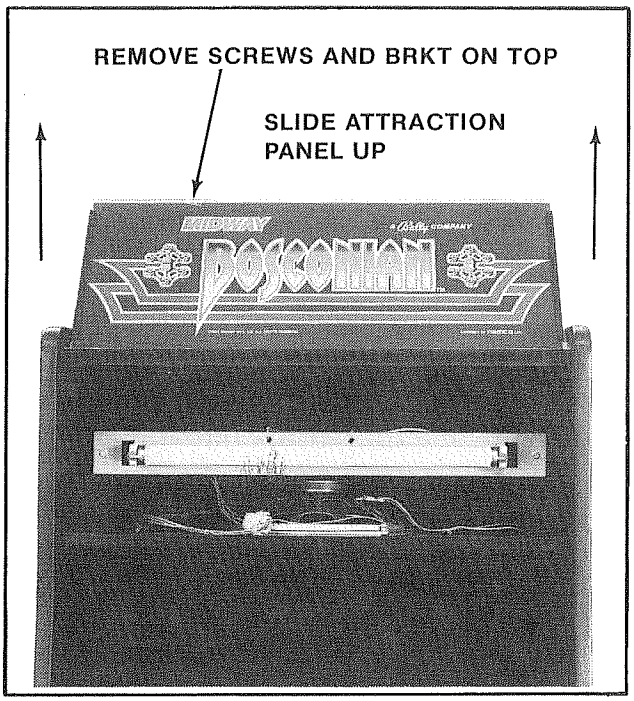


Figure 21 Opening the attraction panel — Upright game

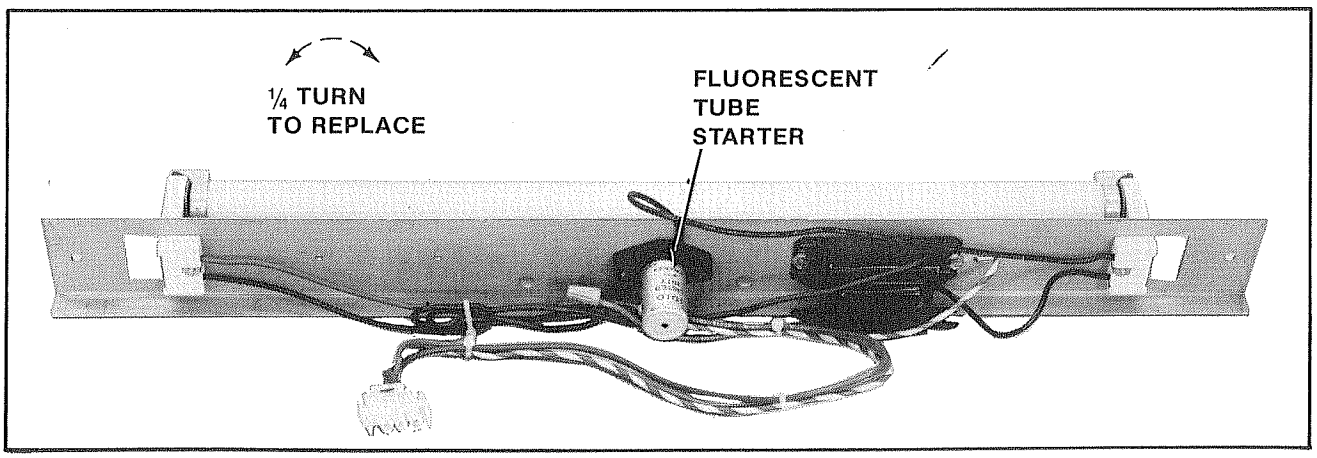


Figure 22 Replacing fluorescent starter — Upright game

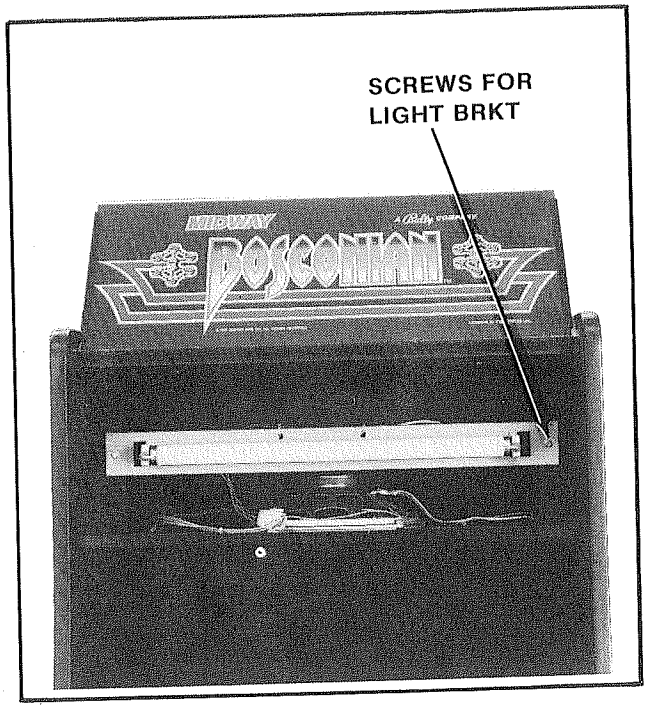


Figure 23 Replacing fluorescent tube mounting bracket — Upright game

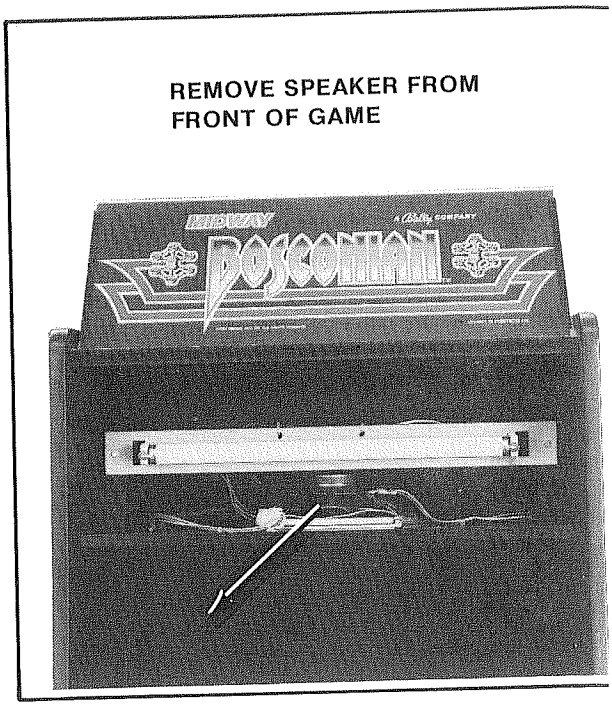


Figure 24 Replacing speaker — Upright game

Figure 25 Opening the attraction panel — Mini game

2. **MINI MODEL:** See Figure 25.
   - Turn the power off to the game.
   - Remove the screws from the top and bottom the formed attraction panel.
   - Remove the formed attraction panel by pull it straight away from the cabinet. This expo the attraction panel light bulbs and th mounting board.
   - To service the light bulbs and their mount board:

     Turn the power to the game back on so you see which bulbs are burnt out.

     Mark the burnt out bulbs and turn the powe the game back off again.

     To replace the burnt out bulbs, grasp th gently and pull straight out.

     The new bulbs are gently pushed into empty sockets.

     To completely replace the light bulb moun board:

     Open the cabinet rear access door and unp the mounting board from its power cable.

     Remove the screws that hold the moun board to the cabinet.

     Gently slide the mounting board out the f of the cabinet being careful not to catch cable on anything.

     To reinstall the above removed items, rev this procedure.

- To replace the speaker. See Figure 26.
  Be sure the power is off to the game.
  Disconnect the speaker from its cabling.
  Remove the nuts and bolts securing the speaker.
  Slide the speaker out through the rear access door.
  To reinstall the speaker, simply reverse this procedure.

3. THE COCKTAIL TABLE MODEL HAS NO BACK-LIT ATTRACTION PANEL

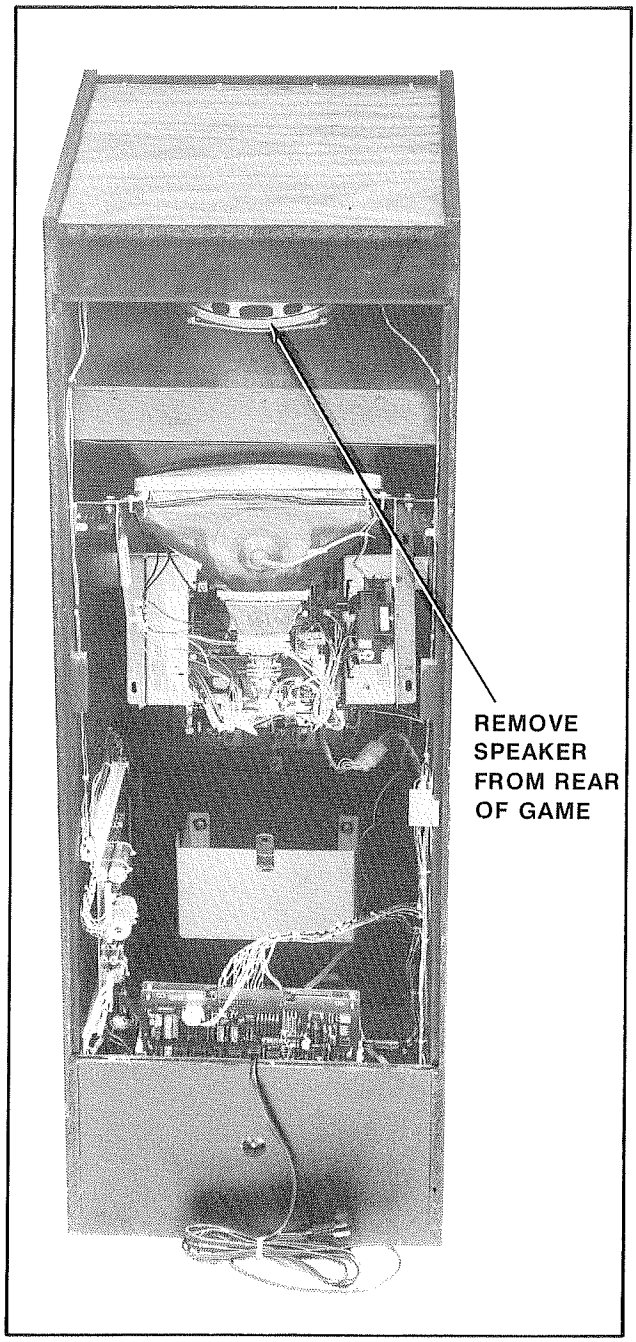


Figure 26 Replacing speaker — Mini game

COIN DOOR MAINTENANCE

METAL COIN ACCEPTOR MECHANISMS

Periodically, the metal coin acceptor mechanism(s) must be removed from the coin door and cleaned.

1. Make sure the power to the game is off.
2. Unlock and open the coin door.
3. Remove the coin acceptor mechanism as shown in Figure 27.
   - Push down on the two spring loaded latches.
   - While holding the latches down, pull the top of the coin acceptor mechanism toward you.
   - Release the latches and lift out the coin acceptor mechanism.
4. Clean the magnet of all foreign particles. See Figure 28.
   - This may be accomplished by swinging the gate open as shown in the above figure.
5. Remove the cradles and undersize levers and clean the bushings. (A pipe cleaner makes a good bushing cleaner.)
   - Also clean the pivot pin.
6. Whenever needed, the coin acceptor should be cleaned with hot water and cleanser in the following manner:
   - Place the coin acceptor in boiling water for about ten minutes.

CAUTION: BE CAREFUL NOT TO BURN YOURSELF.

   - Next, use a brush and kitchen cleaner to remove all remaining foreign matter from the unit.
   - Rinse the coin acceptor in clean boiling water.
   - Dry the coin acceptor thoroughly by using filtered compressed air to blow it dry.

NOTE: The reason we recommend using boiling water is that it evaporates faster than cold water and speeds drying time.

7. To lubricate the coin acceptor:
   - Use **ONLY** powdered graphite and put it **ONLY** on the moving parts of the coin acceptor. These parts are called out in Figure 29.
   - Be extremely careful to keep the powdered graphite away from paths that are traveled by the coins.

WARNING
DO NOT USE OIL
TO LUBRICATE THE
COIN ACCEPTOR.

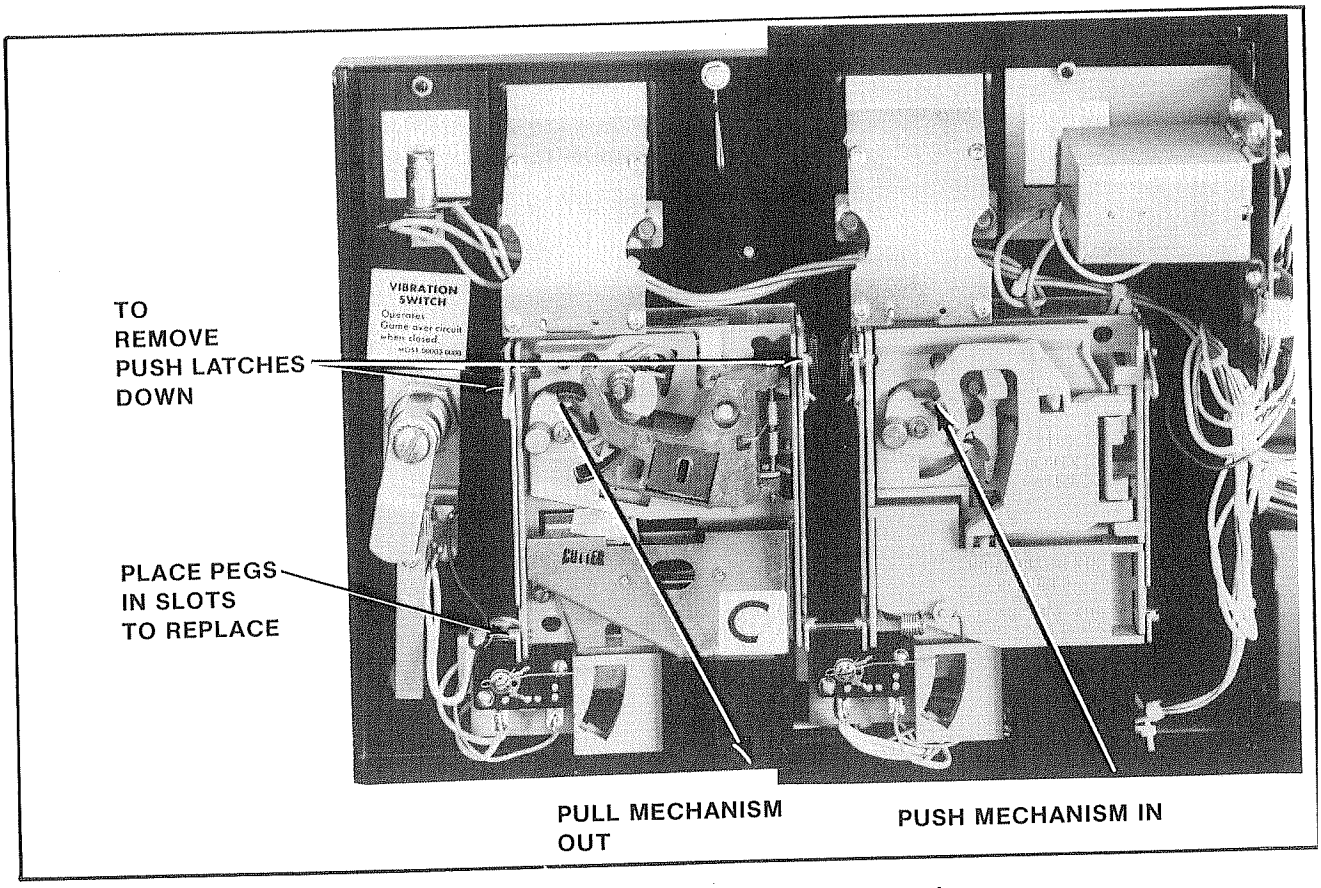


Figure 27 Removing and replacing coin acceptors

8. Check the coin chute for obstructions such as: paper, gum, etc.
9. Reinstall the coin acceptor to the coin door. See Figure 27.
   - Place the two pegs at the coin acceptor's base into their retaining slots.
   - Now push the top of the coin acceptor toward the coin door until it snaps in place and is held there by the two spring loaded latches.
10. Close and lock the coin door.

PLASTIC COIN ACCEPTOR MECHANISMS

The plastic coin acceptor mechanism(s) must be removed periodically from the coin door and cleaned.

1. Make sure the power to the game is off.
2. Unlock and open the coin door.
3. Remove the coin acceptor mechanism(s) as shown in Figure 27.
   - Push down on the two spring loaded latches.
   - While holding the latches down, pull the top of the acceptor mechanism toward you.
   - Release the latches and lift out the mechanism.

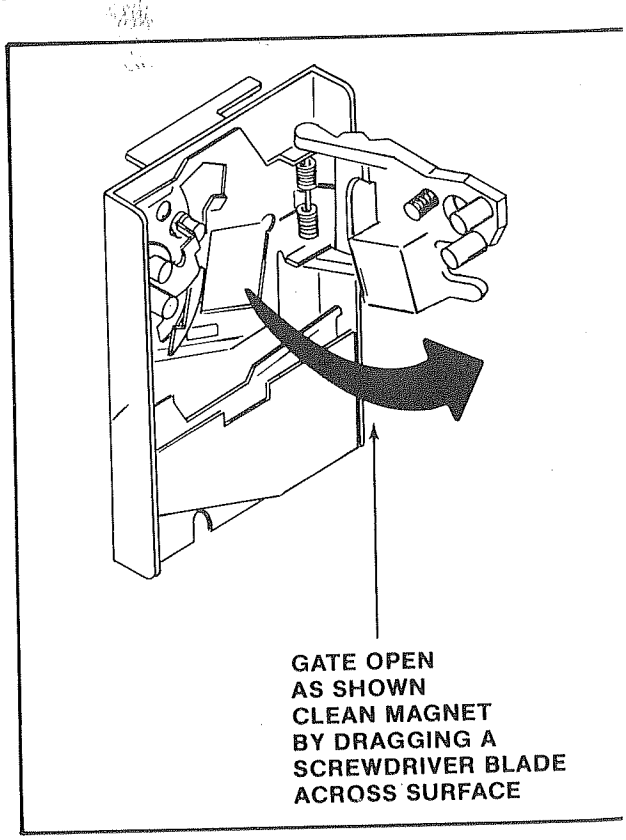


Figure 28 Opening the metal coin acceptor

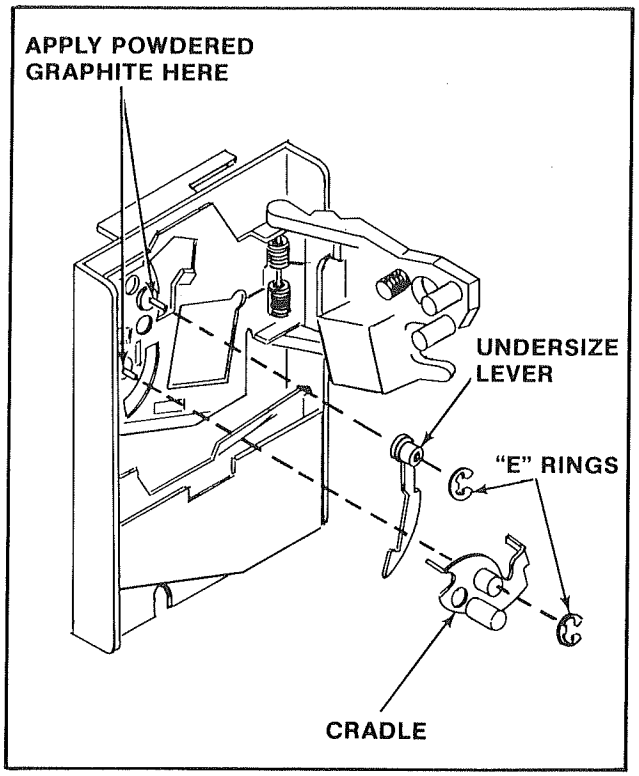


Figure 29 Lubricating the metal coin acceptor

4. Squeeze the two pins indicated in Figure 30 together to open the mechanism and break it down into its three basic parts.
   - Clean the mechanism in hot soapy water. It never rusts.
   - Rinse the mechanism in clean hot water and allow it to dry.
   - Reassemble the mechanism (it never needs lubrication).
5. Check the coin chute for obstructions such as: paper, gum, etc.
6. Reinstall the coin acceptor to the coin door. See Figure 27.
   - Place the two pegs at the coin acceptor's base into their retaining slots.
   - Now push the top of the coin acceptor toward the coin door until it snaps in place and is held there by the two spring loaded latches.
7. Close and lock the coin door.

NOTE: See Figure 31 for instructions on how to set the plastic coin acceptor mechanisms to either accept or reject Canadian quarters.

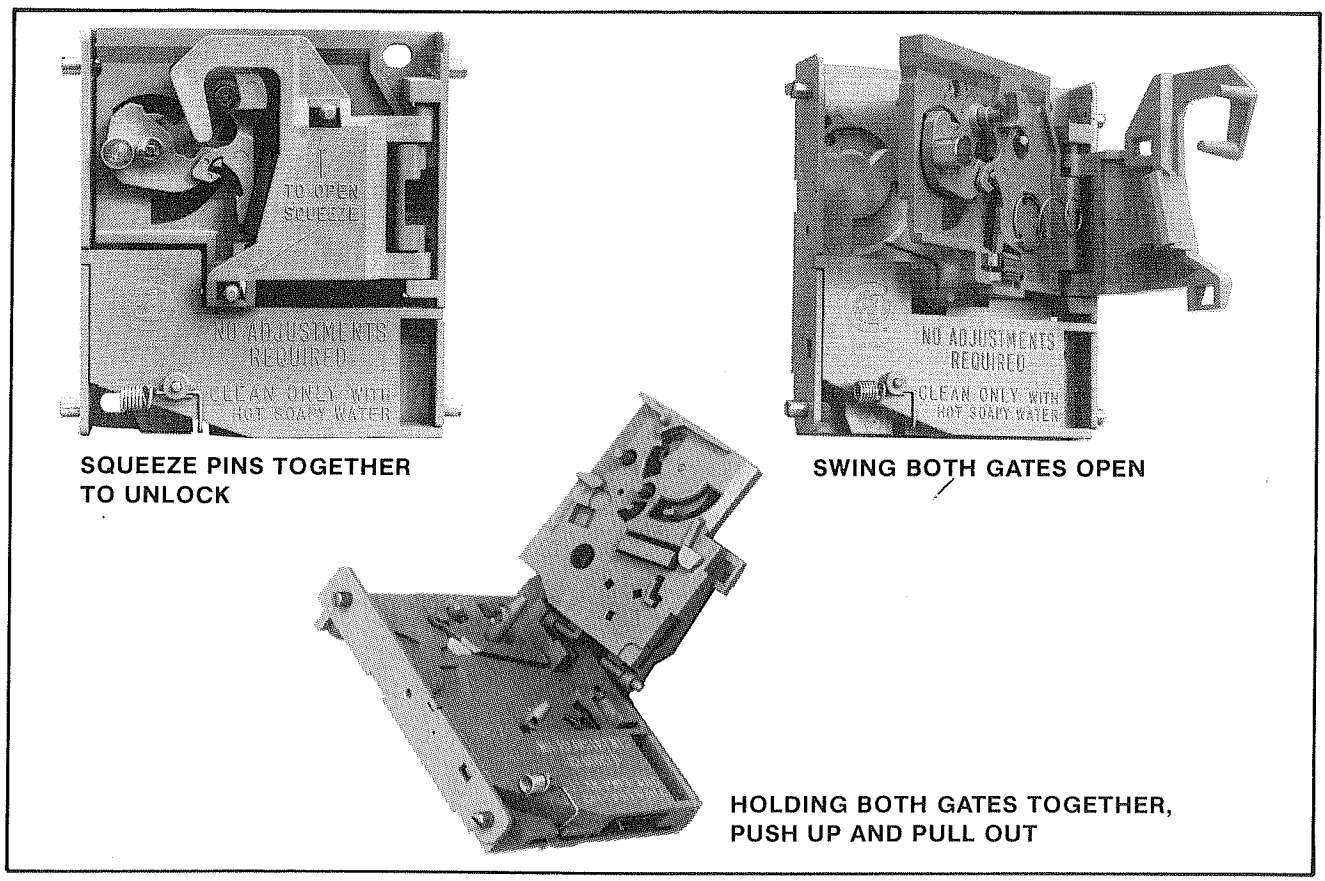
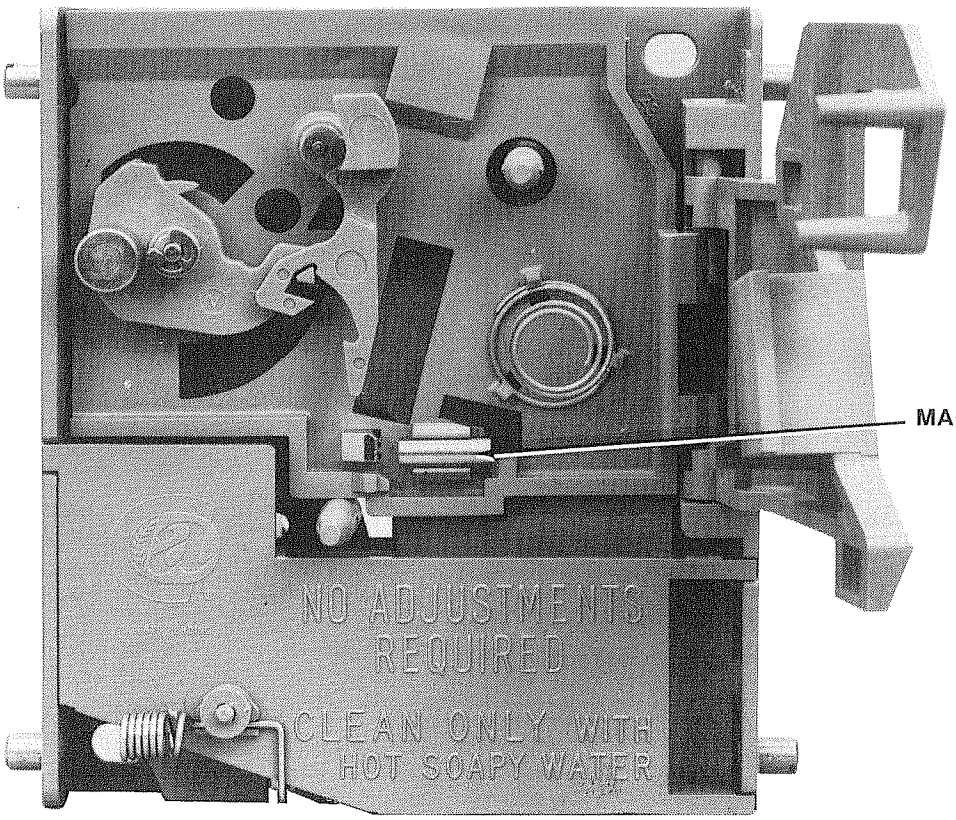


Figure 30 Opening the plastic coin acceptor



ACCEPTOR CAN BE SET TO ACCEPT U.S. QUARTERS ONLY OR BOTH U.S. AND CANADIAN QUARTERS.

SLIDE MAGNET TO EXTREME RIGHT (AS SHOWN) TO ACCEPT BOTH U.S. AND CANADIAN QUARTERS.

TO ACCEPT U.S. QUARTERS ONLY, SLIDE MAGNET TO EXTREME LEFT.

Figure 31 Changing the plastic coin acceptor to accept American or Canadian quarters